

## ABSTRACT:

2 An apparatus for carrying out a multi-step process of converting hydrocarbon fuel  
3 to a substantially pure hydrogen gas feed includes a plurality of modules each module  
4 being in fluid communication with adjacent modules. The modules may be arranged  
5 axially along a common axis of flow or alternatively the modules are arranged along a  
6 common axis so that they are nested one within the other. The multi-step process  
7 includes: providing a fuel processor having a plurality of modules; and feeding the  
8 hydrocarbon fuel successively through each of the modules in the reactor to produce the  
9 hydrogen rich gas.